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Veterinary Medicines in Britain: Output and Industry Organisation since 1900[1]

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The historical development and economic impact of pharmaceuticals in the UK are nowadays reasonably well documented. That industry has become the most profitable and fast growing of the country's high-tech industries. Its member firms undertake more than one-fifth of the national research and development (R&D) activities, one half being carried out in Britain, and currently achieve a £2.4 billion favourable trade balance with the rest of the world.

However, all too little is known about one sub-set of the industry, namely the veterinary medicine sector, and the measures it took to evolve new therapies for improving the health care of animals. The present article seeks to bridge that knowledge gap. To be sure, that sector was for decades relatively insignificant when compared with the human-based industry. Then in the 1950s, it began to grow in importance as the means of ensuring a plentiful supply of meat and dairy products to all income groups. From the 1980s, the pharmaceutical content of feedstuffs diminished and by 2000, a radical change in the industry's structure had taken place, after pharmaceutical giants had handed over work on animal medicines to specialist firms.

In the early years of the twentieth century, questions of animal health in Britain took second place to the protection of human health. The Veterinary Department of the Board of Agriculture controlled epidemics such as foot-and-mouth disease by slaughter and movement restrictions. However, it did set up a diagnostic laboratory at Wembley in 1893 for brucellosis (abortion in cattle) and planned a Central Veterinary Laboratory at Weybridge for broader scientific research into such diseases.

Even so, the authorities failed to encourage the development of medicines to treat the approximately one per cent annual loss of livestock through a wide range of disorders. Farmers, for their part, judged that it cost less to put down sick animals, or alternatively used primitive methods of varying efficacy that could well inflict severe pain. At a time when the UK had some 1.5 million horses, external hurts were often neglected, while owners believed that it was sufficient to keep their constitutions healthy with laxative horse balls and powders.

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Britain's largest veterinary medicine producer was Cooper of Berkhamsted, which made a dip powder for the parasitical sheep scab. Yet poor home demand compelled it to export ninety per cent of that product, mainly to the British Empire or honorary dominions such as Latin America. Other firms and institutions pursued a more advanced path, basing their work on that of Continental scientists, such as Pasteur in France and Koch in Berlin, inventors of vaccines and sera to cure or ward off diseases. Those bodies included the Lister Institute in London and Evans & Co. of Liverpool (later Evans Medical), which collaborated with that city's Institute of Comparative Pathology.

One very active manufacturing firm was Burroughs Wellcome of London, founded by two American-born entrepreneurs. In 1912, it offered its first veterinary product, an anti-tetanus serum. A few years later, its Physiological Research Laboratory set up a veterinary department, well advanced in investigating brucellosis in cattle and canine distemper when the First World War broke out in 1914.

The UK government soon grasped the crucial economic and strategic wartime importance of some animal species. In a pre-mechanisation era, Britain's army needed a total of 1.4 million horses, for transporting soldiers and hauling military equipment from the railheads to the battlefront. Thus, outbreaks of parasitic mange or bacterial glanders would have catastrophically disrupted the country's war effort. Thousands of vets were therefore recruited to administer appropriate remedies; the authorities later decided that it was more economical to put down diseased horses than to attempt their cure.

Then in 1918, an economy-driven government withdrew its wartime financial support from farmers, causing a prolonged agricultural depression that hampered improvements in animal healthcare. Thus, only a few British firms pursued research in this field. Wellcome, as Burroughs Wellcome became in 1924, did identify the organisms causing certain animal diseases, for which it developed vaccines. British Drug Houses also introduced some useful anti-parasitic drugs. In 1925, Cooper, newly merged with its rivals McDougall & Robertson, remained the leading specialist producer, with annual sales of £550,000. That compared with Wellcome's total turnover of £1.4 million, mostly from sales of human medicines.

The limited veterinary activities of British firms in the home market were supplemented by branches of overseas, mainly American, multinationals. In 1930, the estimated value of the country's animal medicine output, at £329,000, came to no more than two per cent of the pharmaceutical total. By then, there were enough firms operating in Britain, namely thirty-three in 1935, for them to form a trade association, as the nucleus of a future industry. However, any hoped-for breakthrough in animal therapy was still to come.

That breakthrough, creating opportunities to treat effectively far greater numbers of animal diseases than previously, arrived in the form of entirely novel medicines. In 1937, May & Baker invented the sulpha drug, M&B 693, three years later offering varieties suitable for animals. The drug cured both the prime minister, Winston Churchill, of pneumonia in 1943 and the Royal Circus lion, Nero, in the following year. The antibiotic era rapidly followed, its development hastened by the pressure of the Second World War.

After 1945, Britain's agriculture industry was to enjoy far more thriving conditions than hitherto. The government introduced plans to assist farmers and others with subsidies, encouraging improvements in the health of livestock. It arranged for vets to receive greater scientific training than hitherto. As early as 1946, Wellcome, having established a Veterinary Research station in Sussex, was the first producer in the world to use penicillin for curing streptococcal

mastitis in cows. Veterinary medicine output therefore quadrupled in value, from pre-war levels of around £600,000 to £2.3 million in 1948. However, that represented only a marginal increase from 2.7 to 3 per cent of the rapidly expanding overall pharmaceutical output, boosted as it was by intensive demand for human usage of sulpha drugs and antibiotics.

In the 1950s, a striking development took place in the role of Britain's veterinary medicine sector, which would take on a wholly new function. For some decades there had been ambitious projects, most notably in Continental Europe, to develop novel systems of animal management. That entailed the herding together of livestock on a vast scale in order to raise and maintain them with the minimum of labour and other costs. However, a side-effect of these moves was to permit the spread of infectious diseases, which scientists would be expected to control with the aid of powerful medicines.

For Britain, a potentially lucrative target would be poultry, which in 1955, after the end of rationing, provided only one per cent of all meat products consumed. For most people, chicken as a dish was then a relative luxury; the aim would be to make available both whole birds and separate portions, such as legs and breasts, cheaply enough to be accessible to even the least well-off. Since American agriculturalists were already converting live poultry into dead meat on an industrial scale, it needed a British pioneer to follow suit. That was to be Geoffrey Sykes.

Having trained at US colleges and production sites, Sykes devised three stages in this conversion process. First, young chicks were hatched in huge hatcheries. Second, birds were reared in extensive factory-like buildings, the numbers allowing both scale economies and the monitoring of growth and slaughter weight. Third, once slaughtered, birds would be plucked and drawn in a fully mechanised sequence of assembly-line operations.

Inevitable violent behaviour in these overcrowded sheds was countered by such measures as de-beaking and feeding male birds with female hormones in order to tranquillise and fatten them. The equally predictable infections had to be treated by a cocktail of drugs. Antibiotics were quickly recognised to possess growth-promoting properties. American pharmaceutical corporations, with their longer experience of intensive animal rearing, had already evolved appropriate products, which British and European rival companies soon attempted to challenge with their own brands. Likewise, the leading UK feed producers were now adding pharmaceuticals to vitamins as supplements to their feedstuffs, some forming joint ventures with pharmaceutical firms.

The grocery chain Sainsburys encouraged Sykes and a few notable followers, such as Antony Fisher and Colonel 'Streak' Corbett, to move from supplying broiler chickens alone, to offering wrapped portions suitable for individual purchase in supermarkets. However, during the final processing stage, raw chicken sections were apt to putrefy, a problem initially met by spraying them with antibiotics. That measure left a substantial residue in the meat, potentially harmful to consumers.

By the 1960s, the 'poultry revolution' caused the output of animal medicines almost to triple in value between 1958 and 1968, by which time it accounted for a record twelve per cent of pharmaceutical production. Over that period, the share of poultry in British households' meat consumption also tripled. Given such opportunities, the leading UK-owned drug companies were greatly extending their veterinary operations through acquisitions.

Wellcome merged with the Cooper, McDougall & Robertson combine, linking its own biological strengths with Cooper's reputation in anti-parasitic medicines. Beecham, having invented its pioneering semi-synthetic penicillins, soon began to offer brands for

the animal market. It set up an agricultural products division after acquiring an animal feedstuffs company, followed by the purchase of a leading French medicinal firm. Glaxo, already running a specialist animal department, acquired Allen & Hanburys, later consolidating their respective veterinary research programmes.

As in the 1930s, these companies were up against the UK branches of powerful and far more experienced American corporations. These served the US veterinary medicine market, which was now five times the size of the British. In the absence of any product data, it is significant that in 1970, Merck's $69 million and Eli Lilly's $61 million overall R&D outlays dwarfed the combined research total of $38 million of the three British leaders mentioned above.

Within a decade, British companies were beginning to have second thoughts about remaining in the animal medicines market. Hailed as giants at home, in global terms they were no more than middle-rankers, vulnerable to take-over or market erosion from foreign rivals. To join the world drug top table, the only feasible course would be wholesale mergers and ridding themselves of all non-core activities, not least the veterinary ones. Human beings belonged to just one species. By contrast, the animal kingdom comprised many species, subject to an enormous range of diseases. Moreover, regulatory changes in the 1970s and 1980s forced farmers to reduce the amount of growth-promoting pharmaceuticals in animal feedstuffs. Thus, in 1987, Britain had nearly 3,000 veterinary medicines on sale, with average annual turnover of no more than £40,000. The task of research and production of animal remedies should properly be in the hands of smaller specialist companies.

The first company to follow that route towards divestment was Boots, which merged its veterinary interests with those of Fisons, selling all of them in 1983 to outsiders. Four years later, Wellcome disposed of all its veterinary assets to a US firm, Pitman Moore, which soon afterwards took over those of Glaxo as well. Beecham initially moved in a different direction by a merger of equals in 1989 with the US SmithKline, its joint veterinary holdings initially ranking fourth in world markets. However, within six years SmithKline Beecham's veterinary department was contributing no more than seven per cent to its total output, with profit margins steadily declining. It was then sold off to Pfizer.

By 1992, the value of UK veterinary medicine output, at £225 million, was only 2.6 per cent of the pharmaceutical industry's £8,531 million. Almost half that sector's sales were to treat companion animals – or pets and horses for leisure – as against only two-fifths for livestock. There remained thirty-five specialist producers based in the UK, the market leader being Merial Animal Health, a combination of Merck's and Rhône-Poulenc's veterinary units. Its headquarters was in Britain, but almost all the other specialists were either American- or European-owned. Despite veterinary medicines accounting for nearly one-fifth in the increase in the wider pharmaceuticals' sector output during the period 1948 to 1968, and so making a major contribution to the emergence of the celebrated UK pharmaceutical industry outlined at the beginning of this article, by the end of the century, veterinary medicines once again became essentially an insignificant branch of the wider industry operating in the UK, and almost totally insignificant among British-owned pharmaceuticals firms.

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